Guided by Theory?
An Investigation of Teachers' Beliefs about
TELL and CALL at a University in Japan

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Abstract

Before the COVID-19 pandemic, universities in Japan had been slow to transition from paper-based to digital methods and materials. In addition, the most applicable theories for teaching and learning languages with digital technologies had not been considered deeply by many university teachers, and their beliefs about these theories had not been thoroughly investigated. This paper presents a preliminary investigation of the theoretical assumptions of English teachers at a university in Japan. It evaluates the extent to which these beliefs are in accordance with established theories of Computer Assisted Language Learning (CALL) and Technology Enhanced Language Learning (TELL). The investigation shows that English teachers at this particular university are guided by established theories of CALL and TELL to some extent, but such theoretical considerations are constrained by more pragmatic ones. Although the respondents in this study did not perceive there to be a significant difference between traditional and digital language teaching and learning theories, it is argued that there is a need to reassess the theoretical underpinnings of traditional language teaching methodologies in the post-COVID-19 world of hybrid and blended education.

Keywords: theory, computer assisted language learning, technology enhanced language learning, higher education, Japan

Introduction

Since the advent of the personal computer (PC) in the late 1970s, educators worldwide have been transitioning from traditional to digital teaching and learning tools and materials (McIsaac, 1979). Sometimes this transition has been gradual and piecemeal, and other times sudden and all-encompassing. Most recently, in 2019, the COVID-19 pandemic caused by the SARS-CoV-2 virus brought about a complete, albeit temporary, shift to online teaching and learning, sometimes referred to as Emergency Remote Teaching (ERT) (Ferri et al., 2020). Thousands of teachers found themselves having to design, develop, and deliver both asynchronous on-demand and synchronous live lessons to learners who were unable to attend a physical campus (Oliveira et al., 2021; Bligh et al.,

2022). In 2022, with COVID-19 being gradually brought under control, most educational institutions around the world have returned to face-to-face lessons. Still, many teachers continue using various digital tools and materials to develop and deliver lessons (Lockee, 2021).

During the period of rapid technological advancement since the 1970s, there have been many opportunities to examine the theoretical foundations for using digital technology in education. However, there have also been times when the exigency of the situation has demanded solutions immediately, without sufficient time to research or reflect on how or why these digital technologies should be implemented. The COVID-19 pandemic and subsequent mass deployment of ERT is clearly one of those situations.

This report presents a case study of Japanese university teachers' beliefs about language teaching and learning theory before, during, and after the COVID-19 pandemic. More specifically, it aims to uncover the extent to which English teachers at a university in Japan believe in and follow established theories of Computer Assisted Language Learning (CALL) and Technology Enhanced Language Learning (TELL) when developing and delivering digital language lessons.

Some research has shown that, before the COVID-19 pandemic, Japanese institutions of higher education (HE) had been slow to transition from traditional to digital lesson materials and methods. There was a low penetration of Learner Management Systems in the HE and a low usage of these systems when they were in place (Nae, 2020). Possible reasons for the low adoption of digital technology include time and budget constraints, lack of demand from students or teachers, and lack of practical or theoretical knowledge about such systems. However, other research conducted on Japanese university teachers has revealed a high degree of confidence and ability with technology (Cote & Milliner, 2018) and an apparent feeling that technology in language classrooms is pedagogically beneficial (Caldwell, 2020).

Where the current research seems to fall short is in examining teachers' beliefs about digital language teaching and learning theory. This paper aims to address this apparent gap in the literature. Firstly, by establishing a framework of CALL and TELL theory supported by a body of academic scholarship, then by investigating teachers' beliefs about theory, and finally by assessing the extent to which teachers' beliefs fit into established CALL and TELL theoretical frameworks.

Literature Review

This literature review was compiled by searching a body of scholarly knowledge indexed by Google Scholar. The Google Scholar interface was queried for the following search terms: "computer-assisted language learning theory" and "technology-enhanced language learning theory". Search results that did not specifically address "theory" in either Technology Enhanced or Computer Assisted Language Learning were excluded from this review. In addition to searching Google Scholar, a "snowballing" technique was adopted whereby the citations of scholarly works that had been located through database searches were scoured for references to other important scholarly works on theories of CALL or theories of TELL.

CALL and TELL

Two broad umbrella terms have commonly been used for researching the use of technology in teaching and learning languages. "Computer Assisted Language Learning" (CALL) dates back to the 1960s (Levy, 1997; Warschaur & Healey, 1998; Bax, 2003) and has historically been used to refer to "the search for and study of applications of the computer in language teaching and learning" (Levy, 1997). The term "Technology Enhanced Language Learning" (TELL), on the other hand, started to become widely adopted in the early 2000s and represents a wider view of technology, including smartphones, tablets, virtual worlds, and multiplayer games (Walker & White, 2013). In contrast to CALL, TELL is less about "assisting" language learning and more about creating an environment where a range of technologies are "normalized" for teaching and learning purposes (Bax, 2003, 2011; Walker & White, 2013).

Theories of CALL and TELL

Although many academic papers have been written under both acronyms, the literature seems to fall short when it comes to theories that are peculiar or particular to CALL or TELL. Hubbard and Levy (2020) suggest that CALL has no theoretical frameworks of its own but instead draws from a range of other disciplines by borrowing, instantiating, adapting, amalgamating, and synthesizing existing theories that range from negotiated interaction (Smith, 2003) to activity theory (Basharina, 2007). Indeed, Hubbard (2008) identified 113 distinct theories in his meta-analysis of CALL and TELL research and found no single dominant one. This shows how eclectic CALL and TELL researchers have been when designing and administering research projects.

Warschaur and Healey (1998) identified three distinct "phases" of CALL: behavioristic, communicative, and integrative. The authors claim that each phase is associated with certain kinds of technology and pedagogical approaches. The behavioristic stage is based on the stimulus, response, and reinforcement theory of behavior propounded by B. F. Skinner (1938) in the mid-20th century. During this phase, computers were used as tireless tutors to drill learners in linguistic forms. Conversely, during the communicative phase, learners were encouraged to use computers to manipulate linguistic forms rather than being drilled on them. Finally, the integrative stage was epitomized by a socio-cognitive view of teaching and learning, emphasising using language in authentic social contexts (Warschaur & Healey, 1998).

The three "phases" of CALL have, however, been criticized as confusing, contentious, and inconsistent by Bax (2011). Bax suggests that we should conceptualize the history of CALL as a series of "approaches" rather than "phases". The first of these approaches, "Restricted CALL" corresponds closely with Warschaur and Healey's (1998) "Behavioristic CALL". The second approach, "Open CALL" is mainly in use now, and as the name suggests, is more "Open" than "Restricted CALL" in terms of task type, student activity, types of feedback, and teacher roles. The third approach is named "Integrated CALL" and is postulated by Bax as one possible future of CALL that had still not come to pass when his article was published (Bax, 2003).

Bax saw the future of CALL as a world in which the use of technology in the language classroom would be completely "normalized" and integrated into the language learning process. Bax published a follow-up to his 2003 paper in 2011 in which he recapitulated some parts of his original argument and updated and revised other parts (Bax, 2011). The most significant update was aligning what he referred to as "normalization" in his original paper with the work of Vygotsky, or more specifically "neo-Vygotskian perspectives [that] help us to understand how adults, and not only children, learn new concepts and ways of operating" (Bax, 2011, p. 7). Bax seems to argue that, in some respects, technology can stand in for peers or teachers in helping students to "scaffold" (Bruner & Sherwood, 1976) their learning of languages.

Hubbard and Levy (2020) draw a line from well-established theories of learning to theories of language learning and finally to theories of TELL. Their discussion of the Interaction Account (IA) of language learning (Long, 1996) ties loosely into Warschaur and Healey's (1998) "integrative" account of CALL, in the sense that language learners should be encouraged to communicate through a computer as opposed to being tutored by a computer. Hubbard and Levy's (2020) account of IA also aligns closely with the Comprehensible Input (CI) hypothesis, which Stephen Krashen has consistently propounded since the early 1980s (Krashen, 1985). Krashen's basic argument is that a second or foreign language is acquired in one way and one way only: by understanding meaningful messages in the target language. Regarding TELL, using subtitles for videos or pop-up word definitions for texts would be examples of things that make the target language more comprehensible (Hubbard & Levy, 2020).

The final theory discussed by Hubbard and Levy (2020) is constructivism, which claims that all human knowledge is constructed as opposed to transmitted (Hubbard & Levy, 2020). The preeminent example of a digital learning technology that is purportedly based on constructivism is the Moodle Learner Management System (LMS). Social constructivism plays an important role in the pedagogical foundations of the Moodle LMS, where "modules such as Glossary and Database enable students

to construct both their own knowledge and community knowledge through contributions of entries" (Suvorov, 2010).

Summary of CALL and TELL theory

In summary, we can see that there are few theories that are peculiar or particular to CALL or TELL, but a wide range of theories of language and learning have been adapted and coopted into CALL and TELL paradigms. Many of these theories are just as valid for traditional language materials and lessons as for digital ones. Some of the more prominent of these theories are Skinner's (1938) behaviorism, Vygotsky's (1978) Zone of Proximal Development (ZPD); Krashen's (1985) Comprehensible Input hypothesis; and the "broad church" of constructivism (Philips, 1995).

Research Design

Research question

This research aims to address the following question:

To what extent are English teachers at a university in Japan guided by established theories of CALL and TELL when developing or delivering digital language lessons?

Methodology

This study adopts a qualitative research methodology and investigates and analyses human behavior and experience. This study does not purport to be the "last word" on whether English language teachers at Japanese universities are guided by established CALL and TELL theories. On the contrary, it only aims to generate a tentative "first impression" of one possible answer to this question and perhaps pave the way for further investigation in this area (Aspers & Corte, 2019). The author does not warrant that the results presented here will be fully generalizable in other contexts. Still, it is believed that the vignette sketched here will bear similarities to situations at other institutions.

Methods

A case study was deemed an appropriate and achievable first step toward establishing the extent to which English language teachers working in Japanese HE are guided by established theories of TELL and CALL. Semi-structured interviews were an appropriate method of data collection, given that the goal was to investigate teachers' own beliefs (Creswell, 2012).

A theoretical thematic analysis of the semi-structured interview transcripts was conducted according to the procedure laid out by Braun & Clarke (2006). The transcripts were scrutinized for relevant comments, and the comments were grouped into themes deemed to have a bearing on the research question. The analysis was theoretical as opposed to inductive because there was an attempt to fit the data in the transcripts to the pre-existing theoretical framework of CALL and TELL established in the literature review section of this paper (Braun & Clarke, 2006).

Interview questions

In order to obtain information from teachers that pertain to the research question, a list of interview questions was devised. Since the interviews were semi-structured, some follow-up questions that went beyond the list were also addressed. However, the core questions presented in Appendix 1 formed the basis of the interviews.

It is important to note here that sometimes teachers are unable to put a name to a theory or explicitly state to which theory a certain pedagogical activity might pertain. Sometimes what teachers do is a better indicator of their beliefs than what they say they believe. For these reasons, some questions about the kinds of activities and technologies teachers implement in their classes were included to extrapolate from these activities and technologies certain theoretical beliefs that may not have been explicitly stated.

Respondents

The respondents in this study were selected with a convenience sampling approach because they were easily accessible, available at a mutually agreeable time, and willing to participate in the research (Etikan, Musa, & Alkassim, 2016). The three respondents were English teachers who were all employed on a full-time basis at the same private university in Japan. In order to ensure the respondents' anonymity, the name of the university will not be given, and only generic details of the respondents will be provided. The three respondents were all male and between the ages of 30 and 50, with between five and twenty years of experience teaching English at the university level in Japan.

Ethical permission to conduct the current study, record, transcribe the interviews, and use the data from those interviews anonymously was obtained from all three respondents by way of signed informed consent forms.

Findings

In order of numerical significance, the themes identified in the thematic analysis were "Pragmatic Considerations," "The Traditional versus Digital Dichotomy," "Decontextualized Vocabulary Study," and "Comprehensibility, Cognitive Load, and the Zone of Proximal Development." Each of the themes will be discussed further below.

Pragmatic considerations

Pragmatic considerations such as expediency, efficiency, usability, consistency, reliability, accessibility, and adaptability factored highly in the respondents' decisions about methods and materials to use in their classrooms.

Respondent 2, for instance, seemed to be sensitive to the time it takes to create a set of activities compared to the time it takes for students to work through those activities. He acknowledges that this is not necessarily always in accordance with best pedagogical practices:

> "…I'm more oriented towards filling the time than I am to adhering to a particular pedagogical principle" **(Respondent 2)**

However, he also acknowledges that he would rule out a specific activity even if it was expedient if his experience told him that it wouldn't work well:

> "…if there's things that I have experience with that I'm quite certain are not effective, then I would consciously avoid them" **(Respondent 2)**

Respondent 3 commented on the time pressures exerted on teachers during the ERT period at his university, and in particular, how these time pressures made it difficult to consider applicable theories of language teaching and learning deeply:

> "…we were just translating as quickly as we could from paper-based to… deliverable online. So, there wasn't too much time to think about theory." **(Respondent 3)**

Finally, Respondent 1 recalled his experience of teaching a few years before the pandemic and the dangers of relying fully on digital solutions:

> "…a few years ago… I relied pretty much entirely on digital content… one day the server went down on Moodle… I was just left in the dark for the entire class, and I was scrambling to get something together to fill the rest of the time for the class." (Respondent 1)

From the above comments, we can see that teachers are sensitive to temporal constraints, both in respect of the time it takes them to develop materials for their English classes, and in relation to how

many minutes of lesson time a certain set of materials might be expected to consume. Another point that is very important to acknowledge is that teachers do not want to put complete faith in a techno-logical system that might unexpectedly let them down and leave them scrambling for activities to replace the planned technological ones.

The traditional versus digital dichotomy

The traditional versus digital dichotomy was another frequently occurring theme that was touched upon by all the respondents at least once. Regarding whether there is a significant difference between the most appropriate theories for digital as opposed to traditional language lessons, all three respond-ents seemed to consider that there was not:

> "I don't think [there is] a significant difference between the traditional and digital theories that I apply to my classes." **(Respondent 1)**

> "In terms of theory, there shouldn't be any difference… between digital and… ana-logue… Unless the technology is enabling you to do something that you couldn't do previously." **(Respondent 2)**

> "I think you're still dealing with the same students and trying to get them to engage with English and improve their learning the same way. There might be theories or concepts related to how you deliver material, that could be different. But I would say no, they probably don't differ significantly." **(Respondent 3)**

Decontextualized vocabulary study

All three respondents referred to the study of vocabulary in a decontextualized manner, with the use of the digital flashcard program Quizlet (www.quizlet.com):

> "…one software [application] that we use for students quite often is Quizlet, which is the digital flashcard program" **(Respondent 1)**

> "…mostly things like digital flashcards [applications] would most com-mon" **(Respondent 2)**

The Quizlet application also has a "Live" mode that allows students to work in teams to answer questions synchronously on their mobile devices. One respondent also mentioned this specific mode:

> "…we use a lot of Quizlet Live… to just practice vocabulary in a kind of fun way." **(Respondent 3)**

Comprehensibility, cognitive load, and the Zone of Proximal Development

Comprehensibility, cognitive load, and the Zone of Proximal Development (Vygotsky, 1978) are grouped together here as they are very closely related and overlapping ideas.

The comprehensibility of language learning materials was a concern to at least one of the respond-ents, who noted how digital devices might be utilized to make materials more comprehensible:

> "…traditional paperback dictionaries are quite cumbersome and take a long time to look up words. But digital… is just a quick word search… if this glossary is there. So, it does make text more comprehensible and easier for students to understand" **(Respondent 1)**

A closely related concept of the cognitive load was also mentioned by one respondent:

> "…something that I think a lot about is cognitive load. That's a dimension that's always in the back of my mind, when I'm planning an activity, or when I'm designing something…

how much of this can a student do before they… shut down?" **(Respondent 2)**

The Zone of Proximal Development (Vygotsky, 1978), another closely related concept, was touched upon by one of the respondents:

> "I think that the Zone of Proximal Development – it's quite easy to get your head around quickly, but also quite effective. It just makes intuitive sense. Once you've seen it laid out, there's this area where if you push [students], they could achieve that." **(Respondent 3)**

Discussion

Data collected in the semi-structured interviews suggest that the teachers at this university in Japan are guided by established theories of TELL and CALL to some extent when developing and delivering digital language lessons for their students. However, some significant factors prevented a deep consideration of the theory in certain circumstances.

In this study, it was evident from the respondents' remarks that considerations of theory sometimes gave way to more pragmatic concerns, such as how long an activity takes to do in comparison to how long it takes to develop, whether an activity can be administered in a consistent and reliable way, and how adaptable an activity might be. It was also clear that the exigencies of the COVID-19 pandemic limited the extent to which the teachers in this study were able to carefully consider CALL and TELL theory.

Most of the respondents in the current study did not consider language learning theories for digital lessons to differ significantly to theories for traditional lessons, although Respondent 2 thought that if technology was "enabling you to do something that you couldn't do previously", then theories may differ. As discussed above, it has already been argued that there are no theories peculiar or particular to CALL or TELL. Rather, CALL, and TELL researchers have drawn on existing ideas of language and learning and adapted them to digital contexts (Hubbard & Levy, 2020).

Although the respondents in the current study did not consider there to be a significant difference in the most appropriate theories for digital as opposed to traditional lessons, several theories were mentioned or alluded to that were ostensibly deemed to be suitable for either context.

In the literature review section of this paper, several theories of CALL and TELL that have been established in an academic body of knowledge were discussed. The most prominent of these theories include behaviorism (Skinner, 1938), the Zone of Proximal Development (Vygotsky, 1978), Comprehensible Input Theory (Krashen, 1985), and constructivism (Philips, 1995). These theories were explicitly stated or alluded to by the respondents in this study.

Respondent 3 directly stated that Vygotsky's (1978) construct of the Zone of Proximal Development (ZPD) significantly influenced his beliefs about teaching. He suggested that technology should be used in such a way that the complexity of technology does not fall outside a learner's ZPD, and ideally, it will help them move into the next stage of their ZPD.

Respondent 2 talked about "cognitive load," which was not one of the theories of CALL or TELL established in the literature review. However, the concept of cognitive load is very closely related to Comprehensible Input hypothesis and the ZPD. If digital lesson materials or activities impose too great of a cognitive load on a learner, it would be hard to argue that those materials are understandable or that those activities fall within a learner's ZPD.

Respondent 1 also alluded to the Comprehensible Input hypothesis by talking about how digital technologies such as automatic glossaries can make language learning texts easier to understand. In addition, he noted how such technologies were less "cumbersome" than traditional paper-based dictionaries. The same respondent mentioned his use of Moodle, an LMS based on principles of social constructivism widely adopted in HE. The respondent emphasized, however, that he was

reluctant to fully rely on Moodle or other digital technologies due to his recent experience of a technical failure leaving him "in the lurch" during a class. Here again, it could be argued that pragmatic considerations sometimes outweigh theoretical ones when developing and delivering language lessons.

Finally, although none of the respondents explicitly mentioned theories of behaviorism, all of them mentioned their use of digital flashcard programs such as Quizlet. These perspectives are based on principles of behaviorism and involve using the computer as a tireless tutor, as described in Warschaur and Healey's (1998) first "phase" of CALL.

Conclusion

The teachers in the current study are guided to some extent by established theories of TELL and CALL when developing and delivering digital language lessons. These theories included behaviorism, the Zone of Proximal Development, Comprehensible Input, and constructivism. Overall, they do not perceive there to be a significant difference between theories of traditional and digital language teaching and learning.

The teachers in this study were also limited by pragmatic considerations and practical constraints when deciding how to implement their language lessons, whether by traditional or digital means. In addition, time pressures imposed by the COVID-19 pandemic did not create a conducive environment for thoroughly considering theory when moving from paper-based to digital lessons.

Further research would be required to investigate which TELL or CALL theory, if any, could be considered the "best" for the context in which the current study respondents are teaching. They work in an institution with well-established pedagogical procedures, policies, principles, and particular expectations from the various stakeholders involved in the educational process. Even if one of the teachers wanted to solely adopt a certain theory, it seems unlikely that they would be able to unilaterally implement this desire.

It seems likely that the teachers interviewed in this study will continue to be guided by a combination of different theoretical principles that apply both to traditional and digital language teaching and learning. In addition, these principles will need to be compatible with more pragmatic considerations of efficiency, usability, and reliability. To the extent that theoretical beliefs are incompatible with pragmatic considerations, such considerations may take precedence when teachers develop and deliver digital language lessons.

Finally, the implications of this study for language teachers working in institutions of higher education in a post-COVID-19 world should be considered. It will be necessary in some cases to re-examine and re-assess the theoretical underpinnings of their traditional methodologies. Blended or hybrid teaching and learning may well become the norm, and it will no longer be acceptable to adopt ad-hoc ERT-style approaches. Many in the language teaching profession have had their eyes opened to the possibilities and, indeed, necessities of digital modes of teaching and learning.

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Appendices

Appendix 1: Interview questions

1. Are you consciously guided by any particular theories of language learning when you deliver traditional language lessons?
2. Are you consciously guided by any particular theories of language learning when deliver digital language lessons?
3. In your opinion, what are the most significant differences between **traditional** and **digital** language lessons?
4. Do you think that that most appropriate theories for guiding **traditional** language learning lessons **differ significantly** from the most appropriate theories for guiding **digital** language learning lessons?
5. How did your favored theories of language learning change – if at all – during the mandatory remote teaching phase of the COVID-19 pandemic?
6. What kind of activities do you administer in your **digital** language learning lessons?
7. What kind of technologies do you utilize in your **digital** language learning lessons?